### BIO 181: Introduction to Biomolecular Simulation

- **Course Title**: Introduction to Biomolecular Simulation
- **Abbreviated Course Title**: Biomolecular Simulation
- **Course Subject**: BIO
- **Course Number**: 181
- **School Submitting Request**: Natural Sciences
- **Division**: Upper Division
- **Effective Term**: Fall 2010
- **Lower Unit Limit**: 4
- **Upper Unit Limit**: 4
- **Prerequisites**: Bio 2 and Chem 8 and (Math 11 or Math 21) and (Physics 8 or Physics 18) or Consent of Instructor

#### Prerequisites with a Concurrent Option

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<th>Corequisites</th>
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#### Major Restrictions

- **Class Level Restrictions**: This course uses lectures and laboratory exercises to teach the principles and practice of molecular modeling with a focus on simulations of biological macromolecules. Topics covered include classical molecular dynamics, molecular mechanics, docking, and visualization. The computational laboratories will involve simulations of systems including water, micelles, DNA, and proteins.

#### TIE Code

- **TIE Code**: T: Lecture plus Supplementary Activity

#### Reasons for Request

- **Pre-requisite Change**: Addition of Math 11 as a possible first semester calculus course prerequisite option. Changed Bio 100 to Bio 2 to reflect replacement of Bio 100 with Bio 2 in the Biology major curriculum (approved spring 2009)

#### Brief Explanation of Change(s)

- **Lecture**: 3 contact, 3 non-contact
- **Lab**: 3 contact, 2 non-contact
- **Seminar**: 0 contact, 0 non-contact
- **Discussion**: 1 contact, 0 non-contact
- **Tutorial**: 0 contact, 0 non-contact
- **Field**: 0 contact, 0 non-contact
- **Studio**: 0 contact, 0 non-contact

#### Total Contact/Non-contact Hours Per Week

- **Total Hours Per Week**: 12

#### Grading Options

- **Pass/No Pass Option for Everyone**

#### In Progress Grading

- **Maximum Enrollment**: 120

#### Maximum Enrollment Reason

- **Cross-listing**: May be conjoined with QSB 281.
Conjoined
Cross-listed Schools
Natural Sciences
Can this course be repeated?
No
How many times?

Resource Requirements
Lecture room with LCD projector; Computer laboratory with internet-linked computers running Unix/Linux; TAs per school policy for lab/discussion sections.

Does this satisfy a General Education Requirement? Yes
Course Outline and/or Additional Documentation Math 11 12 repeat fall 2010 memo.doc (82Kb)